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Ultrasonic
Leak Detector and Seal Control Device

SONAPHONE R

Operating Manual
(10/07)

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General safety instructions for the use of the SONAPHONE R

The SONAPHONE R corresponds to the state of the art and the safety-relevant rules. The manufacturer did everything to guarantee safety working. The user must ensure that the safe use is not impaired. The appliance is work-examined and was delivered in a safe to operate condition.

(1) It is only allowed to use or to connect the delivered accessories with SONAPHONE R: the headphone, the ultrasonic probes, the telescopic rod and the charger.

(2) It is only allowed to use the device by trained persons. Every user who works with the device must read this user's manual.

(3) To avoid a device defect the SONAPHONE R has to be protected against moisture.

(4) The device and all equipment can be cleaned with a damp cloth. Aggressive detergents can attack the plastic coating and can interfere with the mechanical stability of SONAPHONE R.

(5) The accumulator of the SONAPHONE R can be charged by the attached charger. The main voltage and the frequency have to be the same as given on the rating plate of the charger.

(6) It is not allowed to open the SONAPHONE R or the equipment or to do repairs on your own. Only the manufacturer is allowed to do repairs.

(7) The SONAPHONE R and the used probes are proper for a usage at a temperature range of 0...40°C. The permissible storage temperature range is about -10...50°C.

(8) Working with the device the SONAPHONE R and the probes should be clearly visible. Never work with the probes or the telescopic rod in areas with non-insulated voltage-carrying parts or without eye contact in unknown areas. If you locate ultrasonic signals on electrical installations, a sufficient safety distance must be kept to avoid electrical flash-overs.

(9) Application and handling of body sound probes have to be executed with sufficient carefulness so that nobody can get hurt by the probe tip. Use the holder for the probe on the shoulder-strap of the leather bag if you carry the probe or when it is not in use.

(10) Also use the leather bag with shoulder-strap if you climb stairs, a ladder, platforms and so on, to prevent an accident.

(11) Using the clamp holder for the probes caution is required, because the spring force of the clamp holder can lead to injuries by getting jammed.

(12) The application of the SONAPHONE R in strong electromagnetic fields should be avoided.

(13) The SONOTEC Ultraschallsensorik Halle GmbH gives no guaranty and also not for damages of a third party caused through misuse of the appliance.

Scope of delivery

testing device SONAPHONE R
ultrasonic transmitter SONAPHONE T

Probes

- air sound probe - pluggable
- extension cable - for probe -
- body sound probe - waterproof -
- body sound probe - special -
- flexible probe

Accessory

- headphone, sound deadening
- directional tube with tip
- ultrasonic transmitter SONAPHONE T
- magnetic holder for probes
- clamp holder for probes
- charger
- telescopic rod
- transportation case
- operating manual

*) Please notice that the scope of delivery can vary appropriate to your order.

Overall view of the device and the accessory

Function description

At many flow processes of gases, liquids and solids in pipelines and on leakages, ultrasound arises from friction. These ultrasonic signals will be received with the SONAPHONE R and the intensity gets audible with speaker or headphone. Simultaneously the level of the ultrasound will be diplayed on a LED-scale.

Ultrasound can arise out of a multitude of processes, as for example:

- at leakages within compressed-air-, steam- and vacuum plants
- at condenser drains
- at leaking valves, gate valves, shutoffs, taps in line systems
- at roller bearing defects
- at cavity on pumps and compressors
- at flash-overs and corona discharges on electrical installations

With the help of SONAPHONE R, faults can exactly get located and their size can get assessed. SONAPHONE T is used to detect leaking spots on vehicles, containers and ventilation systems, where no ultrasound is produced. SONAPHONE T generates ultrasonic waves, which come out from leaking spots. The exact locating is done from the outside with SONAPHONE R.

The testing device SONAPHONE R is a mains-independent, mobile hand-held instrument. For the acquisition of the ultrasound, different probes can be used, which can be connected with a cable or directly to the testing device.

Connections, operating- and display elements of the SONAPHONE R and its functions

Starting up

Switching on or of the device the ON/OFF-button has to be pressed. After an operation time of 10 minutes the device switches off automatically. If the detection is not finished at this moment the SONAPHONE R has to be switched on again.

CAUTION!

To prevent hearing damages the volume knob has to be turned to minimum (left stop) before switching on the device. After switching on you can increase the volume as long as the leackage signal can be determined.

Depending on the operating purpose the probe has to be connected to the SONAPHONE R (see section "Application of the probes“). An air sound probe is normally used for leak detection. The intensity of the ultrasonic level depends on the dimension of the sound source, the sound source orientation and the distance between the probe and the sound source. So this effect can be used to detect and assess leakages.

For leak detection, especially when a high surrounding noise level occurs, the use of the sound deadening headphone is recommended. For this reason the headphone has to be connected to the plug (Look to the picture on previous page).

The volume can be controlled through the VOLUME knob, where the position influences the intensity of the LED-scale.

Charging the batteries

If the operating time of the SONAPHONE R runs out, you have to recharge the internal batteries. To start charging, you have to connect the plug of the charger (on the right side) with the SONAPHONE R. After that you have to plug in the charger. The red charging lamp lights up during charging. If the battery is completely discharged it can take 9 hours for recharging. When the charging is completed, the charging lamp goes out and the charger can be unplugged.

An overcharging protection in the device prevents a device damage caused by overcharging.

The charging power adaptor can also be used as power adaptor for the SONAPHONE R.

If the red LED charging lamp sparkles during charging, the SONAPHONE R has a defect and has to be sent to the manufacturer for a check.

To improve the life of the batteries, they has to be recharged only when the batteries are completely discharged.

Ultrasonic transmitter SONAPHONE T

The ultrasonic transmitter SONAPHONE T sends continuously ultrasonic waves. The modulation of the ultrasonic signal can be changed by confirming the button MODE once. You have to use this function if unusual noise superimposes the sound which has to be analysed. Confirming the button MODE twice the transmitter power increases. So it is possible to locate small leaks. Confirming the button MODE three times the modulation by an increased transmitting power increases.

Charging the batteries

If the operating time of the SONAPHONE T runs out, the green lamp sparkles and you have to recharge the internal batteries. To start charging, you have to connect the plug of the charger with the SONAPHONE T (plug CHARGE). After that you have to plug in the charger. The red charging lamp CHARGE sparkles during charging. If the accumulator is completely discharged it can take approximately 14 hours for recharging. When charging is completed, the red charging lamp permanently lights up and the charger can be unplugged.

An overcharging protection in the device prevents a device damage caused by overcharging. The charger can also be used as a power adaptor for the SONAPHONE T.

CAUTION!

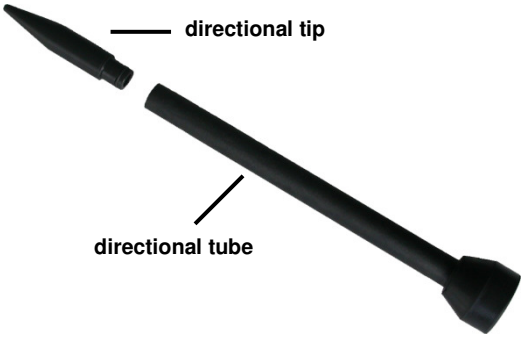
Only use the delivered charger to charge the internal batteries!

Application of the probes

Air sound probe

The air sound probe is used to prove ultrasound. One can connect the probe directly to the testing device, but it is also possible to use it separately with the extension cable.

An increase of the accuracy of the detection is reached by the plug-on of the directional tube. For the point-exact troubleshooting additionally the directional tip is put on the pipe.



The probe can be screwed onto the clamp holder or magnetic holder for a signal capturing during a longer period.

Body sound probe waterproof

The body sound probe waterproof is particularly suitable for the detection of sources of ultrasonic at even surfaces.

The body sound probe waterproof can be used for ultrasonic tests in damp environment or water systems. After using, the probe has to be dried.

Body sound probe special

The body sound probes are used to prove ultrasound on solid bodies.

They were pressed onto the testing place by hand. To aquire reproducible results, the pressure force and the direction have to be constant.

CAUTION!

Using the body sound probe pay attention to the general safety instructions for the SONAPHONE R (9).

Flexible probe

You can use the flexible air sound probe to detect leaks in difficult accessible areas.

CAUTION!

Using the flexible probe pay attention to point 8 of the general safety instructions for the SONAPHONE R.

Usage of the accessories

Telescopic rod

The telescopic rod increases the reach of the user working with the probes. The probes are jammed in a rotatable clamp and the plug connection is plugged in the socket near the clamp. The connection to the SONAPHONE R is made with the cable of the telescopic rod. The length of the telescopic rod is variable from approximately 1,7m till approximately 3m. In addition the black union nut between outside and interior pipe of the telescopic rod has to be loosened.

CAUTION!

For the use of the telescopic rod notice point 8 of the general safety instructions for the SONAPHONE R.

Trouble shooting

Not every trouble is a real defect of the device. You can safe money and time if you remove the cause of a defect yourself. The following hints should be helpfully:

Error	Possible reason	Remedy
device cannot be switched on	batteries are discharged	recharge batteries
no acoustic signal can be proved	volume control is low adjusted	adjust volume
	probe is not securely connected	connect the plug in full
	headphone is not securely connected	connect the plug in full
	device switched off automatically	switch on the device once more
	probe is defect	test with another probe
no acoustic signal when using the transmitter (SONAPHONE T)	transmitter is not switched on or switched off automatically after a long operating time	switch on the transmitter
red charging-LED sparkles	defect of internal accumulators defect of charging circuit	send in the device SONAPHONE R for an inspection

Maintenance

The device SONAPHONE R, the probes and the accessories have a solid device construction. Nevertheless, they have to be protected against mechanical damages and heavy impact loads. It is only allowed to use solventless detergents.

The integrated batteries have a lifetime of maximally 1000 charging and discharging processes. For that reason they have to be completely discharged and afterwards recharged in regular intervals. You can discharge the accumulator for example by switching on the device SONAPHONE R. The device should be switched on until the green LED will begin to sparkle. Pay attention that the SONAPHONE R has an integrated Auto-Power-Off-function which switches off the device 10 minutes after switching on. After that you have to recharge it with the delivered charger until the red charging control light goes off (see section "Charging the batteries“).

Technical data (SONAPHONE R)

- operating frequency: about 40 kHz
- plugs: ultrasonic probes
  headphone
  charging power pack
- display: LED-scale (10 steps)
- internal loudspeaker
- power supply: internal batteries or external charger
- operating time: about 10 hours with internal batteries
- charging time: maximum 9 hours
- dimensions: 190x110x85 mm
- weight: about 500g
- operating temperature: 0°C to + 40°C
- storage temperature: -10°C to + 50°C
- protection: IP 20
- CE conformity: EC directivec and laws 89/336/EEC (electromagnetic compatibility):

Technical data (SONAPHONE T)

- operating frequency: ca. 40 kHz
- integrated airsound ultrasonic generator
- plugs: for external sounder
  charger
- transmitting power: can be switched (normal/double)
- frequency modulation: can be switched (high/low)
- Auto-Power-Off-function
- voltage supply: internal batteries
- operating time: about 8 hours
- charging time: about 14 hours
- dimensions: 120x65x25 mm
- weight: about 150g
- operating temperature: 0°C to + 40°C
- storage temperature: -10°C to + 50°C
- protection: IP 20
- CE conformity: EC directives and laws 89/336/EEC
  (electromagnetic compatibility)
  DIN EN 55011: " Breakdown sending "
  DIN EN 50082-1: "Immunity"
  DIN EN 60801-2: "Immunity"
  DIN 0871: "Noise suppression"
  IEC 801-2: "Electromagnetical discharge"
  IEC 801-3: "Electromagnetical fields"

Warranty

The SONOTEC Ultraschallsensorik Halle GmbH guarantees the SONAPHONE R and its accessories for a period of 12 months from the date of purchase. Within the warranty period SONOTEC Ultraschallsensorik Halle GmbH will repair all defects caused by faulty design, workmanship or materials for free. SONOTEC Ultraschallsensorik Halle GmbH will repair or replace the defect device or a part of it at their discretion within the warranty period. This guarantee shall not apply to the internal batteries or to damages caused through misuse, neglect, wear and tear and if the appliance has been dismantled or repaired by a person not authorized by SONOTEC. In addition this warranty does not cover lacks, which impair the value or the useability of the equipment only insignificant.

⇒ Delivery opportunities as well as technical changes are subject to change without notice.